



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/665,825	09/22/2003	Hideo Yoshizawa	242956US2	7307
22850	7590	05/19/2005	EXAMINER	
OBLON, SPIVAK, MCCLELLAND, MAIER & NEUSTADT, P.C.			CHEN, SOPHIA S	
1940 DUKE STREET			ART UNIT	
ALEXANDRIA, VA 22314			PAPER NUMBER	

2852

DATE MAILED: 05/19/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/665,825

Applicant(s)

YOSHIZAWA ET AL.

Examiner

Sophia S. Chen

Art Unit

2852

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 17 March 2005.
2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-9 and 17-30 is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5) ☒ Claim(s) 3-6 and 17-20 is/are allowed.
6) ☒ Claim(s) 1,2,7-9 and 21-30 is/are rejected.
7) ☐ Claim(s) _____ is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
10) ☒ The drawing(s) filed on 17 March 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 1/18/05 & 3/21/05.
4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

1. Applicant's arguments with respect to claims 1, 2, and 7-9 have been considered but are moot in view of the new ground(s) of rejection.

Drawings

2. The drawings were received on 3/17/05. These drawings are approved.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).
5. Claims 1 and 21-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Endo et al. (US Pat. No. 6,640,080 B2) in view of Tsukahara (JP 58-126566, cited in Form PTO-1449 dated 6/9/04).

Endo et al. discloses an image forming apparatus comprising: an image carrier 10 configured to move in a first direction (Figure 1(a)); developing means 13 for developing a latent image formed on the image carrier 10 by depositing a toner to thereby form a corresponding toner image (column 8, lines 48-51); image transfer means 14 for forming an electric field between the image carrier 10 and a subject body (recording material) of image transfer to thereby transfer the toner image from the image carrier 10 to the subject body (column 8, lines 51-53); cleaning means (a cleaning brush roller) using a bladeless system for removing a residual toner left on the image carrier 10 after image transfer without scraping off the residual toner with a blade member (column 22, lines 14-17; Figure 7(c)); and a flexible member (a cleaning blade) 23 disposed upstream of the cleaning means 29 and affixed at one edge portion (Figures 1(b) and 7(c)).

Endo et al. differs from the instant claimed invention in not disclosing the flexible member having a flat surface formed with a plurality of grooves at the other edge portion, the plurality of grooves each extending over an image forming range of a surface of the image carrier perpendicularly to a direction in which the surface of the image carrier is movable, and the flexible member is positioned such that the flat surface contacts the surface of the image carrier with the flexible member being deformed.

Tsukahara discloses an image forming apparatus comprising an image carrier 1; a flexible member (a cleaning blade) 8 or 5 having a plurality of grooves 7 at the contact flat surface (Figures 4 and 5); the plurality of grooves 7 extending over an image

Art Unit: 2852

forming range of a surface of the image carrier 1 perpendicularly to a direction in which the surface of the image carrier 1 is movable (Figures 4 and 5); and the flexible member 8 or 5 is positioned such that the flat surface (the contact surface) contacting the surface of the image carrier 1 with the flexible member 8 or 5 being deformed (abstract; "the blade parts 6', 6" are made of an elastic material, the flexibility is obtained on a contact surface with the photoreceptor 1").

It would have been obvious to one of ordinary skill in the art at the time the invention was made to apply the flexible member as taught by Tsukahara in place of the flexible member of Endo et al. to improve the cleaning performance (Tsukahara; abstract).

6. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Endo et al. in view of Tsukahara as applied to claim 1 above, and further in view of Shakuto et al. (US Pat. No. 6,799,012 B2; cited in previous Form PTO-892)

Endo et al. in view of Tsukahara, as discussed above, further discloses the flexible member being formed of an elastic body such as urethane rubber (Endo et al.; column 9, lines 20-21).

Endo et al. in view of Tsukahara differs from the instant claimed invention in not disclosing the flexible member comprising a sheet member formed of polyethylene terephthalate.

Shakuto et al. discloses an image forming apparatus comprising a blade (flexible member) 4 is implemented as a PET (polyethylene terephthalate) sheet (column 5, lines 5-6).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to apply the polyethylene terephthalate as taught by Shakuto et al. in place of the material of the flexible member of Endo et al. in view of Tsukahara because of the same functionality for cleaning/removing toner.

7. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Endo et al. in view of Tsukahara as applied to claim 1 above, and further in view of Shakuto et al.

Endo et al. in view of Tsukahara, as discussed above, differs from the instant claimed invention in not disclosing the toner has a mean circularity of 0.93 or above.

Shakuto et al. discloses an image forming apparatus comprising the toner to be dealt with by a cleaning device 0 is implemented as spherical and dry grains (column 5, lines 40-41). Inherently, the spherical toner has a circularity of around 1.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to apply the spherical toner as taught by Shakuto et al. to the apparatus of Endo et al. in view of Tsukahara because the spherical toner grains are desirable in durability against temperature, low-temperature fixing ability, and resistance to hot offset (Shakuto et al.; column 6, lines 10-15).

8. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Endo et al. in view of Tsukahara as applied to claim 1 above, and further in view of Nishimura (US Pat. Pub. No. US 2002/0141771 A1; cited in previous Form PTO-892).

Endo et al. in view of Tsukahara, as discussed above, differs from the instant claimed invention in not disclosing a process cartridge comprising at least the image carrier and the flexible member.

Nishimura discloses an image forming apparatus comprising a process cartridge 26 including at least an image carrier 27 and a cleaning means 51.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to apply the process cartridge as taught by Nishimura to at least the image carrier, cleaning means, and flexible member of Endo et al. in view of Tsukahara to easily remove/replace parts.

9. Claims 9 and 26-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Endo et al. in view of Tsukahara and Nishimura.

Endo et al. discloses an image forming apparatus comprising: an image carrier 10 configured to move in a first direction (Figure 1(a)); developing means 13 for developing a latent image formed on the image carrier 10 by depositing a toner to thereby form a corresponding toner image (column 8, lines 48-51); image transfer means 14 for forming an electric field between the image carrier 10 and a subject body (recording material) of image transfer to thereby transfer the toner image from the image carrier 10 to the subject body (column 8, lines 51-53); cleaning means (a cleaning brush roller) using a bladeless system for removing a residual toner left on the image carrier 10 after image transfer without scraping off the residual toner with a blade member (column 22, lines 14-17; Figure 7(c)); and a flexible member (a cleaning blade)

23 disposed upstream of the cleaning means 29 and affixed at one edge portion (Figures 1(b) and 7(c)).

Endo et al. differs from the instant claimed invention in not disclosing a process cartridge having at least the image carrier and the flexible member being constructed integrally with each other; the flexible member having a flat surface formed with a plurality of grooves at the other edge portion, the plurality of grooves each extending over an image forming range of a surface of the image carrier perpendicularly to a direction in which the surface of the image carrier is movable, and the flexible member is positioned such that the flat surface contacts the surface of the image carrier with the flexible member being deformed.

Tsukahara discloses an image forming apparatus comprising an image carrier 1; a flexible member (a cleaning blade) 8 or 5 having a plurality of grooves 7 at the contact flat surface (Figures 4 and 5); the plurality of grooves 7 extending over an image forming range of a surface of the image carrier 1 perpendicularly to a direction in which the surface of the image carrier 1 is movable (Figures 4 and 5); and the flexible member 8 or 5 is positioned such that the flat surface (the contact surface) contacting the surface of the image carrier 1 with the flexible member 8 or 5 being deformed (abstract; "the blade parts 6', 6" are made of an elastic material, the flexibility is obtained on a contact surface with the photoreceptor 1").

Nishimura discloses an image forming apparatus comprising a process cartridge 26 including at least an image carrier 27 and a cleaning means 51.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to apply the flexible member as taught by Tsukahara in place of the flexible member of Endo et al. to improve the cleaning performance (Tsukahara; abstract).

Also, it would have been obvious to one of ordinary skill in the art at the time the invention was made to apply the process cartridge as taught by Nishimura to at least the image carrier, cleaning means, and flexible member of Endo et al. in view of Tsukahara to easily remove/replace parts.

Allowable Subject Matter

10. Claims 3-6 and 17-20 are allowed.

Other Prior Art

11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Miyamoto et al. (US Pat. No. 5,107,303) comprising an image forming apparatus comprising an intermediate transfer belt; a bladeless cleaning means; and a cleaning blade being disposed upstream of the cleaning means.

Christy et al. (US Pat. No. 5,323,217) discloses an image forming apparatus comprising an image carrier; a bladeless cleaning means; and a cleaning blade being disposed upstream of the cleaning means.

Conclusion

12. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Response to Arguments

13. Applicant's arguments filed 3/17/05 have been fully considered but they are not persuasive.


Applicants argue that both Scherdel and Tsukahara does not teach or suggest the flexible member disposed upstream of a cleaning means using a bladeless system. The examiner agrees with this argument; however, this feature is disclosed in Endo et al. See above rejections.

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sophia S. Chen whose telephone number is (571) 272-2133. The examiner can normally be reached on M-F (7:00-3:00) First Friday Off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Arthur Grimley can be reached on (571) 272-2136. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Sophia S. Chen
Primary Examiner
Art Unit 2852

Ssc
May 17, 2005

5/17/05
approved
Docket No.: 242956US2



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

IN RE APPLICATION: Hideo YOSHIZAWA, et al.

SERIAL NO.: 10/665,825

GAU: 2852

FILED: September 22, 2003

EXAMINER: Sophia S. CHIEN

FOR: IMAGE FORMING APPARATUS AND PROCESS CARTRIDGE FOR USE IN THE SAME

LETTER SUBMITTING REPLACEMENT DRAWING SHEET(S)

COMMISSIONER FOR PATENTS
Alexandria, VA 22313

SIR:

Responsive to the below indicated communication, the following drawing sheets are submitted herewith:

☒ 2 Replacement Drawing Sheets ☐ _____ New Drawing Sheets

☒ Official Action dated December 17, 2004

☐ Notice of Allowance/Issue Fee dated _____

☐ Other dated _____

The changes and/or modifications made include the following:

The reference character 32 has been removed from Figure 1 and the reference character t₁ in Figure 14 has been changed to T₁.

Respectfully Submitted,

OBLON, SPIVAK, McCLELLAND,
MAIER & NEUSTADT, P.C.

Gregory J. Maier
Registration No. 25,599

Customer Number

22850

Tel. (703) 413-3000
Fax. (703) 413-2220
(OSMMN 06/04)

Philip J. Hoffmann

Registration No. 46,340